

1     **METHOD FOR MANUFACTURING A FORGED GOLF IRON CLUB**  
2                                     **HEAD**

3     BACKGROUND OF THE INVENTION

4     1. Field of the Invention

5             The present invention relates to a method for manufacturing a forged  
6     golf iron club head, and more particularly to a method for manufacturing a golf  
7     iron club head that has an enhanced performance with a larger head size and a  
8     more permeate weight to gain an excellent accuracy and to prolong the distance  
9     for golf playing.

10    2. Description of Related Art

11            The forged iron clubs have been used for over 100 years, and actually  
12    the first iron club head was made by forging. The golf players always like the  
13    soft feeling and solid touch of the forged iron club head, especially the good golf  
14    players with low handicap. So, that is the reason why there are over 50% of  
15    professional golf players who are using the forged iron club heads for playing  
16    into the golf tourments.

17            With reference to Fig. 2, a conventional forged iron club head is forged  
18    from a metal billet which is substantially comprises a body (30) with a striking  
19    face (34) and a hosel (32). The hosel (32) is integrally formed on the body (30)  
20    and is connected to a shaft (not shown). The striking face (34) is attached on one  
21    side of the body (30) for striking golf balls. In a conventional method for  
22    manufacturing the golf club head, the body (30) and the striking face (34) are  
23    respectively formed in a forging process and then are combined together. The all  
24    head is forged into one solid piece, no matter the head is designed with back

1 cavity shape or no cavity/ muscle back shape. There are some limitations with  
2 the conventional forged iron head as follows:

3 a) Small head volume and small profile size.

4 The metal's density becomes higher after forged process, for example  
5 the original density of carbon steel before forging is at 7.80g/cc, but it becomes  
6 7.95 g/cc after forging process. So, the iron club head has a limitation for  
7 designing the proper larger size since the higher metal's density, especially the  
8 small head size causes the difficulty for playing the forged long irons.

9 b) Not versatile in design.

10 For the forged back cavity shape design iron, it is very difficult to design  
11 a deep and wide back cavity shape since the metal's flow from forging is not as  
12 easy as the investment casting. So, the forged iron head just can be designed with  
13 a simple and shallow back cavity shape. But, it is difficult for creating the good  
14 weight distribution design to improve to gain more forgiveness.

15 In addition, the forged iron head cannot design to have complicate shape  
16 and construction, just like the thin face wall thickness design or the undercut  
17 back cavity design.

18 To overcome the shortcomings, the present invention tends to provide a  
19 method for manufacturing a golf iron club head to mitigate or obviate the  
20 aforementioned problems.

## 21 SUMMARY OF THE INVENTION

22 The main objective of the invention is to provide a method for  
23 manufacturing a forged golf iron club head to enhance the performance and to  
24 make the forged iron head to be an“ easy hit” iron club head. The method for

1 manufacturing a forged golf club head has acts of forming a body, integrally  
2 forming a striking face with a hosel and combining the striking face with the  
3 body to achieve a golf club head with a striking face.

4 Other objects, advantages and novel features of the invention will  
5 become more apparent from the following detailed description when taken in  
6 conjunction with the accompanying drawings.

#### 7 BRIEF DESCRIPTION OF THE DRAWINGS

8 Fig. 1 is an exploded perspective view of a golf iron club head  
9 manufactured by a method in accordance with the present invention; and

10 Fig. 2 is an exploded perspective view of a forged golf iron club head  
11 manufactured by a conventional method in accordance with the prior art.

#### 12 DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

13 With reference to Fig. 1, a method for manufacturing a golf iron club  
14 head in accordance with the present invention comprises the acts as follows:

15 (a) Forming a body (10) with a sole, a back area and a toe area. The  
16 material for forming a body (10) can be stainless steel, carbon steel, bronze or  
17 titanium alloy. The body (10) can be formed in an investment casting process.

18 (b) Integrally forming a striking face (12) with a hosel (14). The material  
19 for forming the striking face (12) can be stainless steel, carbon steel, bronze or  
20 titanium alloy. The striking face (12) with the hosel (14) can be formed in a  
21 forging process.

22 (c) Combining the striking face (12) with the body (10) to achieve a golf  
23 club head with a striking face. In practice, the act of combining the striking face  
24 (12) with the body (10) can be an act of force fitting the striking face (12) into the

1 body (10) or an act of combining the striking face (12) to the body (10) in a  
2 welding process or a brazing process.

3 In such a method, the golfer's hitting power is transformed from shaft to  
4 the striking face (12) through the hosel (14) because the forged hosel (14) and  
5 striking face (12) are formed to one piece. The Forged hosel (14) and the striking  
6 face (12) offer the pure energy transmission as the pure forged iron head. In  
7 addition, the force applied to the striking face (12) from a golf ball will be  
8 directly transmitted to the hosel (14). The striking force provided by the golf  
9 club will not influence the combination between the body (10) and the striking  
10 face (12). Consequently, the structural strength of the golf club head is enhanced,  
11 and the useful life of the golf club head is prolonged.

12 In addition, because the body (10) is formed in an investment casting  
13 process, the shape for the body (10) is easy to be versatile and easy to design  
14 with more permeate weight for deep center of gravity or low center of gravity  
15 function. In another words, the iron club head made by the method in accordance  
16 with the present invention has a larger profile size than a conventional forged  
17 iron club head at a same weight. The iron club head has an enhanced  
18 performance with a large head size and a permeate weight to gain an excellent  
19 accuracy and to prolong the distance for golf ball flying.

20 Furthermore, with a large volume and profile size, the iron club head can  
21 be designed with a deep and wide back cavity shape or a complicate shape and  
22 construction, such as a thin face wall thickness design or an undercut back cavity  
23 design. Therefore, the iron club head made by the method in accordance with the  
24 present invention is versatile in design.

1           Even though numerous characteristics and advantages of the present  
2   invention have been set forth in the foregoing description, together with details  
3   of the structure and function of the invention, the disclosure is illustrative only,  
4   and changes may be made in detail, especially in matters of shape, size, and  
5   arrangement of parts within the principles of the invention to the full extent  
6   indicated by the broad general meaning of the terms in which the appended  
7   claims are expressed.